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ABSTRACT

Teaching critical thinking is a relatively new dimension of bibliographic instruction (BI) in the academic environment. It marks a departure from the teaching of "user skills" in which the primary concern is enabling library patrons to determine the appropriateness of reference tools and to use those tools effectively. This report assembles a range of opinions on the extent to which librarians should be directly involved in pursuing an institution's academic goals, cooperating with faculty, or attempting to strengthen critical thinking skills of students. Some would say that in this age of increasingly complex tools, BI violates S. R. Ranganathan's law of saving the user's time. Librarians, therefore, should use the full potential of their expertise to concentrate on delivering information to users. The image of the librarian as teacher is an organizational "fiction" created to establish a more comforting self-image or to seek equal status with faculty. Complicating matters is the increasingly prevalent idea that although critical thinking is vital to the research process, it means different things in different disciplines, and critical thinking skills learned in one area, library use, for example, cannot necessarily be transferred to another area. Others counter that BI need not be confined to how-to procedures and encouraging students to regard reference sources as constituting specific answers, but can be enlarged to teach students to look at information as "evidence to be examined." As far as librarian status goes, the professional literature seems to emphasize strategies for gaining faculty cooperation without allowing the larger issue of academic equality for librarians to take control. Besides summarizing professional theory, the report also discusses ideas for integrating the teaching and encouragement of critical thinking into the traditional, task-oriented BI model, and for nurturing cooperative relationships between librarians and faculty which integrate library skills and course content. The report stresses the need for empirical study on librarian involvement in teaching critical thinking to students. (Contains 52 references.) (BEW)

ED 390 442

The Teaching of Critical Thinking Skills by Academic Librarians

by

Nicholas J. Goetzfridt

Critical thinking is a relatively new dimension of bibliographic instruction in the academic environment. It marks a departure from the teaching of "user skills" in which the primary concern is enabling library patrons to determine which reference tools are the most appropriate ones for a particular subject and then to effectively use those tools to find information. Integrating the teaching and encouragement of critical thinking skills into this traditional BI model involves more than simply trying a new approach to teach library use. It also involves issues that question the extent to which academic librarians should be directly involved in an institution's academic goals, the academic rank and recognition of librarians in higher education and the ability of the faculty and librarians to work together in fostering critical thinking skills in the library. More basic, however, is the issue of whether or not reference librarians should even be involved in strengthening the critical thinking skills of students. This paper attempts to explore the interrelated nature of these issues and the opinions of those who have examined them.

Referring to Samuel Green's 1876 article on reference services, Constance Miller and James Rettig argued in 1985 that the frustrations librarians experience in attempting to reduce the

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"dependency" of users by teaching library use occur, in part, through the sacrifice of Green's "client-centered information delivery-based reference practice" (Miller & Rettig 53). This is done in the attempt to pass on the librarian's "habit of mental classification" as Green described it; regardless of whether or not patrons actually want to possess such habit. At the time of their criticisms (which they note most justifiably reflects S.R. Ranganathan's Fourth Law of Library Science, "Save the Time of the Reader"), the increased complexity of bibliographic tools made bibliographic instruction a "flagrant" violation of the essential purpose of reference services. Miller, Rettig and others considered reference services to be the service oriented, information delivery system which simply connects users with information and not that which justifies librarian visions of being 'teachers' and equal stakeholders in the educational process. As a result of this instructional effort, the very skills reference librarians are identified with are seriously compromised when librarians subsequently sacrifice "their own ability to provide students with the best information" (ibid. 55).

This quest toward "self-service" which Miller and Rettig equate with a non-existent, self-service mechanical shop for cars, fails to allow for increasing bibliographic complexities which are necessarily not conducive to this self-service. Reference librarians should instead concentrate on the requirements of a "client-centered service" through which a patron's time is saved by the exercise of the full potential of the reference librarian's

skills. This approach avoids the barriers to information that bibliographic instruction establishes and then teaches patrons to surmount.

Pauline Wilson's position that the image of the librarian as teacher is not only an 'organization fiction' but provides a harmful and "dysfunctional" self-image (Wilson 153), seems most basic to those who do not support attempts to teach critical thinking skills in bibliographic instruction (BI). Wilson maintains that this fiction, nourished by the "magic of words" (Wilson 151), is in part an attempt to counter derogatory stereotypes of librarians in order to establish and maintain a "more comforting self-image" which raises them above a perceived lower status in academia (ibid. 151). This fiction is further perpetuated by an inability to see that academic libraries function within a system of different agencies and roles; leading librarians in educational institutions to see themselves as working in roles and agencies that are vaguely independent from what should actually constitute a whole.

This fiction, as Wilson sees it, is perhaps most poignantly evident in relation to academic librarians seeking equal status with faculty. While Wilson maintains that librarians typically attribute this lack of recognition to faculty arrogance (and Wilson also notes a failure by librarians to accept the basic tenets of prestige as it is related to advanced education), the main reason for the lack of recognition by faculty is simply that "there is no basis for recognition" (ibid. 154). There is no viable connection

available that links librarians with the occupational role of teacher which is the faculty's role. Wilson further distinguishes between a faculty member's responsibility of disseminating the "graphic record" of a body of knowledge in depth and the librarian's responsibility to understand this record in terms of a "structure" or entity which patrons can access through the employment of library services which are basic to the role and organization of libraries. It is a matter of "informing" rather than of teaching without diminishing the role of the librarian. The amount of literature which instead depicts the librarian as teacher and as deserving of faculty status leads the profession into further uncertainty and dissension as such status is routinely rejected.

Of course, if the profession (or at least a majority of its members) were to believe that a librarian's role is within the context of his or her bibliographic finding and guiding skills offered to patrons without any thought given to being 'teachers' as well, then the discussion on the integration of critical thinking skills into bibliographic instruction would be very difficult to begin. It would have been unnecessary for Feinberg, Wilson and others to question the time and effort put into BI, much less critical thinking skills. For as Jeremy Sayles puts it, your objective as a patron entering a library is "not an introduction to the rudiments of library science but a request for service" (Sayles 198).

But when comparing their thoughts with a wide range of

literature on bibliographic instruction, it also becomes apparent that subjectivity can prevent one from considering evidence that such investments ultimately benefit those who Feinberg and others stress have to have their information needs met. To Sayles, "the line between library instruction and librarian training is thin indeed" (ibid. 198). For Feinberg and King, there was, as of 1983, no evidence available that "advocates of strict methodology and long-term competencies" could use to support the alleged potency of bibliographic instruction (Feinberg & King 25). But before this assertion, there were several studies concerned with both the long-term and short-term benefits of instruction for strengthening both library use skills and attitudes toward libraries. Extending over a six year period, Roland Person's 1981 study offered evidence for increased confidence in library use as a result of such instruction, a greater appreciation for the librarian and an increased appreciation for library instruction in accordance with increasing grade levels. The short-term evaluation of library use instruction by Hardesty, Lovrich and Mannon in 1979 and their 1982 quantitative analysis of the long-term effects of such instruction, both demonstrate that library instruction has a direct effect on the development of library skills. The 1979 study emphasized the need for systematic, quantitative data analysis to earn administrative support for BI programs including the use of a reliable and valid instrument constructed by its pre-testing, the test-retest method and the Pearson correlation coefficient. Such data indicated that the

library use skills of freshmen could uniformly be brought up to the level of seniors with limited BI exposure. The 1982 study supported the hypothesis that long-term retention of library use skills is more related to library-use instruction than to variables such as intelligence or diligence.

The question of the librarian as teacher is therefore not a regression from the issue of the use of BI to help foster critical thinking skills. Its discussion is central to the movement beyond the traditional how-to-use approach to somehow guide students in the evaluation of the information they find as a result of these skills. This is the step that is negligible in Wilson's view of the librarian's dysfunctional attempt to be a teacher in order to compensate for a stereotype and to achieve faculty level recognition in academia. This is also the step that brings into sharper focus the issue of how the academic librarian 'fits into' the educational missions of the institution and evolving discussions on techniques and programs that have worked successfully with the cooperation of faculty and which reflect developing interest in this area.

The articles that argue against the practice of BI (and certainly the attempt to teach critical thinking skills) have not had a significant impact on the integration of BI into reference services and, given the current discussions on expanding BI to encompass critical thinking skills, such views might be regarded as somewhat extreme. These works, however, reflect a disagreement in the profession as to the extent and depth to which efforts in

furthering the "independence" of the academic library user can and should be a part of the librarian's involvement in the education mandates of the university or college.

Subject Specificity and the Librarian's Role

Related to the issue of the extent to which librarians can and should participate in the curriculum and its attempts to develop independent and analytical minds, is the question of whether critical thinking is subject specific and requires a grasp of a subject's basic theoretical dimensions or if critical thinking can be transferred generically across subject areas. In a sense, this question is also reflective of the argument that if 'writing across the curriculum' represents a practical response to the nation-wide call for educational reforms as found in documents such as A Nation at Risk, the proliferation of information in modern society also mandates an ability to analyze what constitutes appropriate information for specific purposes, regardless of what the subject area is.

Plum's emphasis on the importance of the discipline context in the integration of critical thinking into library use instruction emphasizes the resultant structure or framework that discipline association provides. His support of the discipline context as structure for bibliographic instruction centers around the distinctiveness of approaches to knowledge in specific disciplines such as literature in which "research is the unique encounter of

the personal interpretation of the research with the written product of human creativity, the text" (Plum 26).

Different disciplines also may distinguish between the acceptability of certain forms of publication. Plum extends this distinctiveness into actual bibliographic access to the library, maintaining that systems "share with the literature they identify, and with the research process that produces the literature, some of the distinctive characteristics of the discipline" (ibid. 27). While this does not necessarily mandate the tailoring of instructional programs exactly around these distinguishing elements, "any method of teaching that grows from an understanding of the discipline context would aid in developing the desired patterns of thought in the student" (ibid. 27). Any instruction intended to contribute to the critical thinking skills of student that does not take the discipline context into consideration is merely using a "type-of-tool approach" to bibliographic instruction (ibid. 28). The world of bibliographic materials is not ordered around a generic list of reference tools but rather within the disciplines themselves.

Although they acknowledge some attributes of Plum's discipline centered approach, much of MacAdam's and Kemp's discussion of critical thinking contradict's Plum's position; particularly in their argument that regardless of whether or not there is an agreement on a definition of critical thinking, its related skills "should be transferable and be able to be applied to a variety of situations" (MacAdam & Kemp 235). Plum's ideas also clash with the

comparison that MacAdam and Kemp make between this "transferability of skills across disciplines" and the emphasis placed in education upon the importance of applying "writing across the curriculum" (ibid. 235). From this viewpoint, standards of evaluation and analysis emanate generically from BI programs aimed at fostering these skills and are attempts to encourage students to "think in a new way, and to question, challenge, keep, discard, and analyze information" (ibid 237). Their articles, like those of other theoretical thought pieces, draws upon statements like those of Plum and place them within the larger realm of what constitutes the employment of critical thinking skills, how they contribute (again generically) to an institution's educational goals and what steps might be taken to move beyond the mechanics of how to use the library to bring students to the encounter with "intellectual courage" and critical judgement (ibid. 239).

This problem is also evident in Jon Lindgren's "Toward Library Literacy", D. Michelle Cash's "Scrutiny of the Bounty or Teaching Critical Thinking in Library Instruction," Mona McCormick's "Critical Thinking and Library Instruction" and several others. But the question of whether or not or to what extent critical thinking and bibliographic instruction should be developed in some systematic way in accordance with specific disciplines, raises interesting questions about the place of BI in an academic institution.

If analytical skills are dependent upon a reasonably in-depth knowledge of a subject, how then do librarians who feel committed

to being involved as team players in an institution's educational objectives, become recognized as important contributors to these objectives? Does this mean that teaching critical thinking skills in library use is unrealistic and that, at least beyond the restrictions that Miller and Rettig place on the role of the reference librarian, the most effective 'across the curriculum' contribution librarians can make is by simply teaching library use skills? Although perhaps even designed around a particular process model such as the model developed by Carol Kuhlthau, BI programs are often aimed at developing information finding skills and techniques; leaving the ultimate analysis of the quality and appropriateness of the information that is found to the somewhat undefined abilities of students or to the faculty who librarians in the literature often criticize for not connecting information processing to critical thinking.

A Nation at Risk makes no reference to such a role for libraries but rather relegates their role to that of warehouses and information dispensing agencies. Given this perception of libraries in a document frequently identified with the seriousness with which educational reforms must be undertaken in the United States, it should not be surprising to find several attempts by librarians in the developing literature on bibliographic instruction and critical thinking to connect higher education's quest for educational excellence with the need for students to do more than mechanically isolate a minimum number of items to satisfy the requirements of the perennial 'research' assignment. Even

these attempts, as sincere as they may be, reflect the historical "failure" of librarians to be "risk takers" as Patricia Breivik describes it (Breivik 9). Breivik sees it as a failure to venture beyond the comfortable and definable confines of the library profession; to become involved in the wider realm of education through professional organizations not specifically identified with libraries and to engage in more research intended for publications in journals outside the profession when the extension of thought on the involvement of librarians in the wider world of education makes such work appropriate.

Theory Thought Pieces

In light of these issues, it would be helpful if the concept of critical thinking had a commonly accepted definition that could be extended more easily across educational fields into the area of librarianship and thus offer a common area for discussion. But as MacAdam and Kemp note, even the term 'critical thinking' is exchanged with other terminology such as 'analytical thinking', 'reasoning skills', 'problem solving', and 'higher education thinking'. However, the use of different terminology still does not negate the fact that these discussions are concerned with the ability of students to formulate questions both in relation to a research area and the subsequent information generated in a search. They are also concerned with the ability to evaluate and analyze this information, to think logically about the problem to be solved

and about how this information offers solutions or alternatives to a problem.

One of the educational theorists most often referred to in literature in librarianship concerned with critical thinking is Robert Ennis whose characteristics of a critical thinker is paraphrased by Mona McCormick and repeated by Tucket and Stoffle. McCormick's interpretation of Ennis' work identifies critical thinkers as being able to:

> recognize underlying assumptions,
> evaluate evidence,
> evaluate authorities, people, publications,
> recognize bias, emotional appeals, relevant facts,
> propaganda, generalizations, language problems,
> question the adequacy of the data, see relationships among ideas,
> know their own attitudes and blind spots,
> suspend judgements until the search is ended."
> (McCormick 340)

References made in the literature to the self-reliance in library use that these abilities require do not, however, necessarily relate to critical thinking skills but rather may be concerned with the ability to acquire information through the effective use of reference tools. There is a distinction that needs to be made between programs that may apply conceptual frameworks and process models such as those developed and evaluated by Kuhlthau to help enable students to search for information more systematically and attempts in BI programs to teach students to effectively evaluate information found in relation to a problem to be solved.

Knapp's pioneering work in the Monteith study encouraged the design of BI programs that in transcending basic discussions of the

virtues of certain reference sources, utilize what Tuckett and Stoffle describe as the "unifying bibliographic constructs" of conceptual frameworks (Tuckett & Stoffle 60). The seven frameworks most often used in BI programs and that are inherently associated with cognitive learning theory include: "type of reference tool, systematic literature searching, form of publication, primary/secondary sources, publication sequence, citation patterns, and index structure" (ibid. 60). While the combination of two or more of these frameworks strengthens an understanding of the reasoning behind a search strategy and represents an attempt to "insure that users will be better able to retain and generalize what they have been taught" (ibid. 60), such a strategy nevertheless limits the transferability of learned skills because of the generality or subject specific approach of the instructional technique. It also fails to provide instruction on the analysis of information. The desire to impart problem solving skills beyond the inherent restrictions of these frameworks and to more actively apply cognitive theory to bibliographic instruction, has led Cerise Oberman to develop a three-stage process in a learning cycle approach that encourages new discoveries of concepts in the search process, the analysis of these concepts and their application to a practical search experience.

In Oberman's applications, the achievement of the user "independence" Green spoke about requires the integration of abstract reasoning and problem solving skills in the information search process. This is also reflected in Oberman's guided design

approach that while leading students through tasks related to an assigned problem, actively engages students in the reasoning process. Like the cycle approach, the guided approach requires students to deal with and ultimately reject several related hypotheses during the search process which is also designed to facilitate independent research. Tuckett and Stoffle note that these approaches, designed in part from educational methodologies and theories, recognize the "critical role that analytical reasoning abilities and problem-solving skills play in the process of library research" (Tuckett & Stoffle 63). And in contrast to Miller's and Rettig's assertions, Tuckett and Stoffle believe that this actually moves user education "into closer alliance with the patron-centered developments in information and reference service" (ibid. 63).

Lindgren's emphasis on surpassing the teaching of the procedures of library based research to the teaching of a "more organic concept of the library as a functional organ of communication" (Lindgren 41), draws upon Knapp's earlier assertion that, rather than encouraging students to regard reference sources and other forms of information as constituting specific answers to questions, library use instruction needs to work on training students to look instead at information as "evidence to be examined" (Knapp 283). It is this step beyond the 'how-to-do' approach that allows the possibility of the discussion of the integration of critical thinking skills into such education to be realized.

Most theoretical literature on this relatively new possibility is supportive of this interaction and usually makes references to the necessity of working with faculty to make progress in the application of critical thinking skills in library use. Possible course related approaches requiring such cooperation are also mentioned or discussed. But there is almost no research efforts to document the success or shortcomings of such efforts at integration and cooperation. This perhaps may be attributable to the lack of an established, theoretical definition across the profession as to what critical thinking actually is and how it is to be distinguished from the techniques and strategies for finding information. The fact that obtaining faculty understanding, approval and cooperation in this endeavor is sometimes described as questionable at best (with relatively few examples of successes at specific institutions), may also make critical thinking as a subfield of user education equally tenuous. Nevertheless, theoretical discussions are essential to establishing a foundation for the concept of the fostering of critical thinking, its applications in the field and ultimately for research methods to measure its successes and failures.

Status for Librarians and Faculty Cooperation

The lack of a substantial literature that evaluates library search skills in relation to an institution's academic goals (including the fostering of critical thinking skills) has already

been referred to. Faculty perceptions on the academic status of librarians and faculty perceptions of library instruction programs (in this case as they involve the encouragement of critical thinking), may be related but they can also be thought of as separate issues with separate characteristics and variables. Faculty status for librarians involves more than how faculty view BI programs. Education and scholarly achievements in the academic world are but two issues that relate to such recognition. But whether or not these issues determine the success of obtaining faculty cooperation with attempts by librarians to involve themselves in the development of critical thinking skills among university students is debatable. The literature, however, places a greater emphasis on successful examples of and strategies for gaining faculty cooperation without allowing the larger issue of academic status for librarians to take control.

Patricia Senn Breivik's discussion on the lack of recognition for the role of libraries in the context of educational reforms, emphasizes the need for librarians to generally assume a more aggressive leadership role and to become more "knowledgeable about education matters and be committed to education as much as to librarianship" (Breivik 14). This need for leadership is exacerbated by the fact that, despite the lack of instructional innovation found in large academic libraries such as those encompassed in the Association of Research Libraries, the directors of these libraries are the most often to be "sought for insights into librarianship by people concerned with national academic

issues" (ibid. 8).

The successful cooperation between "student, teacher, and librarian...as a team, not as unrelated units, each one pursuing his own particular pleasure" in encouraging critical thinking which Hazel Pulling envisioned in 1959 (Pulling 459) is, as Betsy Baker sees it, dependent upon the ability of librarians and faculty to effectively harness the strengths each has to offer. This is an achievement in which roles are clearly defined and balanced in association with each other and faculty and librarian attitudes toward each other with the idea of moving BI programs from institutional isolation in association with equal commitments to education are at least recognized. Success also involves the willingness of librarians who can "assist in the promotion of library instruction by being thorough and persistent communicators" to seek out responsive (often newer) faculty who are willing to readjust a developing syllabus to reflect the place of library research in a liberal arts education (Baker 324). Whether or not the label of 'teacher' applies to librarians is irrelevant to Baker since getting respect is an integral part of a demonstrated ability to help students "meet research objectives" (ibid. 317). Baker also recognizes that the librarian fostered stereotypes of the "faculty problem" exemplified by Constance McCarthy's description of the rare library visitant and mythical scholar of books is also indicative of the way in which stereotypes from both sources are capable of perpetuating animosity and thwarting any meaningful cooperation.

All of these issues that may affect any BI program regardless of its goals, are basic and relevant to the developing discussion on the integration of critical thinking skills into bibliographic instruction. Critical thinking skills in library instruction requires a stepping away from fixed library use programs that end with the finding of information and into the larger realms of the institution's goals of higher education as they relate to the fostering of critical minds. Without dealing with these basic issues of the librarian as teacher, the extent and depth to which librarians can participate in overall educational goals and meaningful instructional approaches, the movement of BI librarians toward building a foundation for the discussion and the teaching of these skills will be tentative at best.

Beyond Traditional "User Skills" Instruction

As mentioned earlier, discussions on various issues or techniques concerned with bibliographic instruction may make reference to critical thinking skills (or to phrases that essentially represent those skills) without pursuing this topic to any extent. Theoretical discussions on critical thinking in library use have evolved since the 1980s and generally focus on the integration of critical thinking skills into the overall goals of bibliographic instruction. Mona McCormick's guest column in 1983 makes an unequivocal stance in favor of what should be the

indelible role of critical thinking skills in the overall goals of bibliographic instruction; noting that most search strategies discussed in the literature fail to include a step for evaluating the information generated by the search process. "Somehow in our preoccupation with library procedures," she says, "we have ignored the reasons for searching - to learn, to make informed decisions, to evaluate applications of knowledge, to find truth" (McCormick 339). Beyond the capacity of tools in the library to capture specific bits of information, is also the capacity of the library to help evaluate the end products of a search. This remains a fugitive concept for users however because "there are signs that the sights for library instruction may not be set high enough" (ibid. 339). McCormick notes, however, that the increase in library literature on BI often refers to the potential of bibliographic instruction to "promote intelligent learning" (ibid 339).

McCormick also notes Lindgren's point that literacy itself involves not only the ability to read and write but the ability to engage in logical thinking. It is the "experience of thinking," ideally in the context of the academic library's involvement in higher education, from which students can develop traits of intellectual curiosity and critical thinking skills. Lindgren emphasizes his belief that library literacy is not only a specific educational goal but a central element in realizing the goals of education; not the least of which is the "capacity to participate in the ongoing dialogue of civilized minds" (Lindgren 1981: 233).

But he also modifies this statement by noting the "strange phenomenon" that "it is possible to be a successful student without being library literate" and that the habitual plan to attack this illiteracy has been to teach an "endless succession of tools" without placing a greater emphasis on the concepts of research and the evaluation of information sources (ibid. 233).

Other discussions that explore the plausibility and value of attempting to place a greater emphasis on critical thinking skills in library instruction (referred to as "higher-order thinking skills" by Jane Bandy Smith), basically echo MacAdam's and Kemp's perspectives on the importance of encouraging "inquisitive" experiences with libraries in which the evaluation of information as a part of Lindgren's conceptualization of 'library literacy' is a part of the achievement of "intellectual courage" and as a basic "requisite for critical inquiry" (MacAdam & Kemp 239). In a later paper, Lindgren refers back to Knapp's point that students often misunderstand the nature of inquiry when they expect their research efforts to simply "answer the question" rather than lead further into a process of the analysis of evidence for an argument (Lindgren 1982: 28). Referring to Knapp's concept of teaching the library as "evidence to be examined" and the concept of argument as the most central component of the structure of the research proposal, Lindgren discusses several models for teaching library resources in the context of promoting a more "organic concept of the library as a functional organ of communication," requiring a perspective of BI in which the examination of evidence is basic to

teaching research skills in the library (ibid. 29).

Michele Cash equates 'self-reliance' in library use with critical thinking skills. This departs from the tendency in the literature to associate 'independence' or 'self-reliance' with the ability to effectively access information but not necessarily with the ability to evaluate it. This is the extra step in theory and practice which underlines the relevancy of the issues of librarians as teachers, the role and status of academic librarians, faculty perceptions of BI and the librarian's potential involvement in furthering the institution's goal of fostering critical thinking skills. To effectively step beyond the information seeking tradition of bibliographic instruction and to expose students to the "process of determining the authenticity, accuracy and worth of information or knowledge claims" (Cash 5), requires that all of these issues be addressed. Tuckett and Stoffle's emphasis on the impact of instructional design also underlines the inability of a traditional emphasis on the mechanics of reference tools and how-to-search approaches to create this new dimension in bibliographic instruction.

While not specifically directed toward the issue of BI and critical thinking, C. Paul Vincent's argument for the "indispensable" nature of the imagination in the context of BI in the humanities nevertheless draws upon the experiential and subjective elements of the research task which go beyond the accumulation of facts and citations. Kuhlthau's conceptualization of the integration of learning theory into bibliographic

instruction which takes the "cognitive environment of the information user" into account, reflects this movement to incorporate problem solving skills into BI and the need to consider the levels of cognitive development of the students being taught (Kuhlthau 1987: 23). But regardless of whatever levels are identified in the process, the failure to acknowledge this 'cognitive environment' and to perhaps integrate it into the learning cycles and guided design methodologies discussed by Tuckett and Stoffle, is also a failure to encourage experiences of "free inquiry learning" and may actually inhibit thinking (ibid. 24).

Techniques in Teaching Critical Thinking Skills

Techniques described in the literature for encouraging critical thinking in bibliographic instruction generally focus upon the importance of cooperation and planning between a librarian and a faculty member whose receptiveness and subject specialty makes this joint effort successful. For example, Miller (the professor) and Warmkessel (the librarian) outline approaches used to develop a critical thinking centered, BI component of a course concerned with post-structuralist literary criticism and the history of the book. While it was the mutual interest that Miller and Warmkessel had in the history of the book which initiated their joint effort, the integration of techniques to evaluate issues related to the interrelations of text and format seems generally reflective of

other documented attempts to integrate critical thinking skills, bibliographic instruction and the goals of a specific course. The second of two bibliographic sessions that occurred near the latter portion of the course was intended to build upon the course's development of student understanding and analysis of the concept of 'textual instability' and to ultimately enable students to expand their perspectives on literary analysis in relation to works uncovered in the library search process, to evaluate various forms of text and to analyze their own responses to literary works in this context. Miller and Warmkessel argue on the basis of this "successful" integration of bibliographic instruction and course content that the "treatment of bibliographic instruction as an essential component, rather than as a peripheral aspect of the course, may be adaptable to any discipline" (Miller & Warmkessel 64).

Laura Bartolo's account of teaching critical thinking skills in association with legal research to seniors in a "Law and Mass Communication" class, stresses the importance of designing such instruction around particular research needs - in this case the acquisition and analysis of primary authority in legal cases. Bartolo notes that debates over the most effective ways to instruct law students are somewhat reflective of discussions in the BI literature on whether the process approach emphasizing the "skills of researching a problem" or the conceptual framework approach which "places library instruction in an organized disciplinary context" offers the best instructional technique. Bartolo focuses

on the development of cognitive strategies for the use of library materials rather than emphasizing specific reference tools and the associated emphasis that can be placed on critical thinking skills. She notes Kobelski's and Reichel's discussion of the integration of conceptual frameworks in bibliographic instruction which allows for an effective, instructional response in relation to the nature of a particular discipline. As in the Miller and Warmkessel example, Bartolo employed a two session approach; the first serving as a general introduction to some central sources but with a greater emphasis placed on a systematic approach to literature searching. The second session focused on the structures of court opinions and how to evaluate these opinions in order to identify and to analyze relevant decisions. Bartolo discusses this session with an apparent, but not elaborated upon acceptance of John McPeck's position that critical thinking needs to be related to subject knowledge with an awareness of the discipline's basic conventions and principles. In practice, Bartolo seems to modify this viewpoint with an acknowledgement of the lay position of the journalist who must nevertheless be able to analyze and determine relevant decisions and be able to understand and use critical points. Bartolo also outlines the federal and state court systems for students.

Eugene Engeldinger criticizes the assumptions that are sometimes made in teaching critical thinking in education and the diminished involvement of librarians when students need to evaluate the quality of information as a logical step after they have been

shown how to find it. These criticisms are actually aimed at attempts to foster critical thinking across the curriculum. Engeldinger's discussion of analytical questions to be asked of texts in helping students to write critical annotations (which he relates to Gestalt theory), also demonstrates how these questions can direct the teaching methods and goals of the librarian and the course instructor. It also illustrates the need to recognize students' level of competence in relation to a subject area; a need which Thompson and Van Fleet also recognize. It is nevertheless necessary for students to be able to recognize bias, evaluate the method of data collection and in general be able to demonstrate "how the parts of the gestalt interact with each other and the whole" (Engeldinger 200). While the instructor is most able to provide the awareness of when the subject knowledge is valuable, the librarian "who usually knows less about the subject, can empathize when critical thinking skills alone are more valuable" (ibid. 201). Although limited by presentation time, BI librarians in these two examples are nevertheless able to become an intrinsic part of the goals of each course with of course the cooperation and support of the faculty member.

Other examples from the literature which discuss techniques for actually teaching critical thinking skills include Dowell's overview of the two session strategy used at North Texas State to strengthen the synthesizing and evaluation of biographical data in preparation for a journalistic type interview, Thompson's and Van Fleet's association of a perceived need to match the level of

thinking skills among undergraduates with the goal of at least laying a foundation in critical thinking as they discuss BI approaches in an introductory engineering class and Bodi's overview of critical thinking skills that are meant to be a part of BI sessions for English composition classes. Articles by Thompson and Van Fleet and by Bodi are reflective of the general tendency in this part of the literature to preface descriptions of techniques with some kind of position on the need and feasibility for integrating critical thinking and BI strategies; usually without attempting to distinguish between class levels and the use of critical thinking in BI. (Thompson's and Van Fleet's article is an exception to this.)

Bodi stresses the importance of understanding the context of information and of Kuhlthau's work in clarifying the need for librarians to become aware of both the "cognitive and affective elements in the process of critical thinking and research" before librarians can more effectively help college students in BI programs (Bodi 72). Bodi also addresses again the issue of faculty and librarian cooperation in BI and the possibility that the functioning of critical thinking in BI may ultimately serve as a bridge between faculty concern for "information context" and the librarian's concern with "information access" - a bridge which she attempts to explain with practical examples of librarians who respond to faculty requests for critical thinking BI sessions described in a recent faculty development retreat.

Werrell and Wesley also describe a "faculty development

workshop" with the purpose of provide a forum for improving library research assignments designed by faculty; a workshop which besides having the motive of making more connections with faculty, attempted to encourage the creation of assignments which require the analysis of information and not merely the accumulation of library material as an "end product." Despite a desire by librarians to begin to nurture teaching partnerships with classroom faculty, the faculty apparently failed to make a connection between critical thinking and information use in relation to library research assignments and their overall integration into courses. While Werrell and Wesley blame the organization and format of their workshop for this failure, they also stress that the contradictions between recognizing the library as being the "heart" of the university and its actual use, mandate more involvement by librarians outside the traditional library world in order to make such a partnership more plausible.

Niles and Jacobson also describe a continuing education workshop at SUNY-Albany for librarians interested in using critical thinking techniques in their instruction. Complete with a syllabus for "Teaching Critical Thinking in Libraries," their article levels criticism at library schools for failing to provide opportunities for new or experienced librarians to "explore the development and application of critical thinking skills as they relate to BI" (Niles and Jacobson 198). The journal's heading for the article is "Teaching Tough Stuff."

One rather unique technique article on teaching critical

thinking in BI that also merits mention is Joan Bechtel's discussion on intentionally designing the OPAC at Dickinson College to encourage ("perhaps even force") critical thinking in the online search process by presenting undergraduate students with a series of increasingly focused choices which require "discriminating, thoughtful choice as a first step in thinking critically about any given topic" (Bechtel 32). Several examples of search screen displays demonstrate the prerequisite of critical choice; particularly reflected in the choices that need to be made between subjects, related topics and subtopics as well as between primary and secondary source material. Bechtel emphasizes that one of the primary reasons for the boredom students expressed in the online catalog at Northwestern University is that learning the technicalities of the online catalog is "not only tedious but also distracting and time-wasting, as it draws attention away from the central concerns of students and faculty engaged in education" (Bechtel 39).

The Need for Research

If the concept of the self-reliant library user has, as Lechner maintains, expanded beyond the ability to use the catalog, indexes and other reference tools to that of a user who is able to analyze a particular problem, design a search strategy and "evaluate the information obtained as to its relevance and reliability" (Lechner 33), then the issues of the librarian as

teacher, the role of the librarian in the academic goals of an institution, faculty perceptions of librarians in this context and faculty cooperation with librarians in attempting to foster critical thinking skills, all need to be further resolved. As with the integration of information finding skills into the curriculum, research in this subfield of critical thinking and librarianship which demonstrates tangible results, holds considerable potential for bringing these issues in the direction of more constructive discussion. Unfortunately, research directed specifically toward the successful integration of critical thinking skills into bibliographic instruction has yet to be undertaken.

Brown's paper, which attempts to document commonalities between instruction in library skills and in critical thinking and isolates these common factors, does acknowledge the work that has been done (particularly by Kuhlthau) in studying process models of library skills instruction. But as Craver emphasizes, "no empirical research has been conducted in library science and critical thinking" (Craver 14) that as Brown notes, could "further development of the theoretical base of librarianship which is concerned with equipping library users with location and interpretive skills to evaluate and make decisions about information" (Brown 6).

Brown undertakes a content analysis of Kuhlthau's research and process model theory as representative of the library skills area and Robert H. Ennis' theory on research and critical thinking as the content for the critical thinking skills area. Brown's coding

sheets demonstrate that of the 72 process model characteristics that were analyzed, 55 were present in both the critical thinking and library skills instruction models. In the theory analysis portion of the study, Brown found that the three most common characteristics in the theoretical models of Ennis' concept of critical thinking instruction and library skills instruction as developed by Kuhlthau were the process approach orientation, the emphasis on process rather than on product or outcome and a process that emanates from an information need. Brown also provides the distribution of characteristics from both the Ennis and Kuhlthau models and provides a table for the 17 most frequently occurring characteristics. Of the most common characteristics in process analysis, Brown emphasizes that "3 appear to define the type of thinking that are part of the process, i.e. focused thinking, intentional thinking, reflective thinking" (Brown 18) while two other characteristics (evaluation of information and the testing of constructed response) describe necessary action and a method of measurement. Brown makes a point of extrapolating possible future research projects which could be derived from these commonalities; particularly in relation to which a process approach is supported by these linkages between critical thinking skills instruction and library skills instruction. These commonalities also underline the need to examine commonalities that may exist between other instructional models used for teaching library use skills and critical thinking skills with the idea that defining such relationships could lead to more effective methods for integrating

critical thinking skills instruction into library skills instruction.

Brown's point that research is needed to determine how a process approach to seeking information can be supported by the linkage of critical thinking skills and library use instruction, is also suggestive of the connections that could be made with Kuhlthau's 'process' dominated research on library use and her references to the importance of encouraging a "process of learning from information." Although Kuhlthau focuses on variations in confidence levels in relation to her process steps and the feelings of anxiety that students in high schools and colleges experience at different stages of the information search process, the final steps of focus formation, information collection and search closure seem to me to imply some of the attributes of critical thinking. These suggestions are particularly evident in her discussion of the information search process in relation to the high school library media department. However, these discussions of the elements of the search and library environment which influence confusion and increasing confidence, still place more emphasis on student perceptions of their experiences and how understanding their search processes can be used to help them to have more positive and productive experiences with the library. Research which attempts to understand how techniques for teaching critical thinking skills discussed in this paper can be effectively applied to and combined with information search process models such as Kuhlthau's, could begin to give this area of bibliographic instruction a stronger

basis for discussion as well as a stronger recognition in librarianship as a whole. Perhaps just as importantly (but probably occurring after this stronger research basis for discussion in the profession has been established) is the impact that this research would have upon attempts to get faculty support for both the value of teaching critical thinking skills in relation to assigned research projects involving use of the library and a librarian's role in teaching those skills. And perhaps research which provides quantitative support for the positive effects of incorporating critical thinking skills into library use instruction in relation to some variable of student performance, holds the most potential for having an impact upon faculty perceptions of these issues.

In reflecting upon her series of studies on the information search process which constitutes a "complex learning process" (Kuhlthau 1989: 22), Kuhlthau notes that while these studies have implications on methodologies and for future research approaches (particularly in the area of school librarianship), research in this field of librarianship "rarely builds on prior research findings" (ibid. 22). Although Kuhlthau's series of studies are an exception (and there are other examples such as the work by Hardesty, et al.), "research has been fragmented and piecemeal, without connection to prior work or sufficient concentration on one area to build a useful understanding of an issue that can inform practice" (ibid. 22). If there is some truth to this statement, then it seems to obligate researchers at the threshold of a

relatively new area to be studied, to approach these questions of critical thinking and bibliographic instruction with an eye for order and purpose. Anything less than that could make Green's "delivery-based reference practice" and Wilson's concept of the 'organization fiction' of the librarian as teacher, issues again to be disproved and critical thinking skills in bibliographic instruction the opportunity that faded in the chaos.

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